

Sum Ed: Gilpin Apr 27. 1697

The Use and Explanation of
PANCHRONOLOGIA,

OR AN

Instrumental Calendar

OF THE

Sun, Moon, and Fixed Stars, for
any time past or to come.

SHEWING

The Years of our Lord. The
Dominical or Sunday Letters. The Cycle
of the Sun. The Epact. The Prime, or
Golden Number. The Number of Di-
rection. The Fixed and Moveable Feasts.
Terms, and Saints Days, according to
the *Gregorian* or *Roman* Account. The
New and Full Moons. The Quan-
tity of the Suns and Moons Eclipses.
The Moons Age, Her Sign, Southing,
Shining, Rising and Setting, and High
Water at *London-Bridg*. The Suns Place,
Right Ascension, Declination, Amplitude,
Rising and Setting, Length of the Day and
Night. What a Clock it is in any Part of
the World, and the Hour of the Night by
the Stars for Ever.

LONDON: Printed for Robert Morden
at the *Atlas* in Cornhil, 1691.

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SECTION I.

Of the Circles in the Left-hand Corner.

IN the Left-hand Corner of the Instrument are several Concentrick Circles: 1. In the outermost is the *Years of our Lord*, from 1672 to 1699; and when these years are expired, they may be continued for 28 years more, by calling 1672--1700, 1701, &c. 2. In the second Circle, under the year of our Lord, you have the *Dominical or Sunday-Letter* according to the *Julian or English Account*. 3. In the third Circle you have the *Dominical Letter* according to the *Gregorian or Roman Account*. 4. In the fourth Circle, you have the *Cycle of the Sun* for that year which it stands under.

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Examples of all these for this Year 1691.

Find 1691 in the outermost Circle; in the second you find D, the *Sunday-Letter* for the *English Account*. In the third, G, the *Sunday-Letter* for the *Roman Account*. In the fourth you find 20 which is the *Cycle of the Sun* for that year in both *Accounts*. 5. In the fifth Circle you have the *year of our Lord* from 1672 to 1690; and when these years are expired, they may be continued for 19 years more, by calling 1672 1691, 1692, &c. Then, 6. Under the year of our Lord, in the sixth Circle, you have the *Epact* for the *Julian or English Account*. 7. In the seventh, the *Epact* for *Gregorian, Foreign, or Roman Account*. And, 8. In the innermost Circle, you have the *Prime or Golden Number* for the year; which is always the same in both *Accounts*, viz. 1.

Examples of all for this Year 1691.

Find 1672 which now call 1691 in the fifth Circle; in the sixth you shall find 11, for the *English Epact*. In the seventh 1, for the *Roman Epact*. And in the innermost Circle 1 also, which is the *Prime* or *Golden Number* in both *Accounts*.

S E C T. II.

Of the Circles in the Right-hand-Corner.

IN the Right-hand-corner of the *Instrument* are also Eight Concentrick Circles, in the outermost whereof you have these Figures 1, 2, 3, 4, 5, &c. to 19; and these are the *Primes* or *Golden Numbers*, as by the word *Prime* written in the middle of the Circle, doth appear; and under this word *Prime* (in the Seven other Circles) you have these

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Letters A, B, C, D, E, F, and G, which are *Dominical* or *Sunday-Letters*.

By help of these two, viz. the *Prime* and *Dominical Letter*, you may find a Number called *The Number of Direction*, in this manner: For when you have found the *Prime* and *Dominical Letter* by the foregoing Section, if you find the *Prime* for the year in the outermost Circle, the number under it, which is in the same Line with the *Dominical Letter* for the same year, that Number is the *Number of Direction* for that year.

Example in this Year 1691.

The *Prime* was found before to be 1, and the *Dominical Letter* D: wherefore find one in the outermost Circle, and looking under 1 till you come into the same Circle where the Letter D standeth, you shall there find 22; which is *The Number of Direction* for the year 1691.

1691, according to the *English Account*. For the *Gregorian Account*, find 1, the *Prime*, in the utermost Circle, and under it, in the Circle where G stands (which G is the *Roman Dominical Letter*) you shall find 18, which is *The Number of Direction* according to the *Roman Account*.

SECT. III.

Of the Circles of the Kalendar.

IN the outermost great Circle you have the *Names, Natures, and Characters* of the 12 Signs. In the second you have the *Degree* of the *Ecliptick* that the Sun is in every day of the year. In the third you have the *Number of days in each Month*, as *January 31 days, Feb. 28*, as in every common Almanack. In the fourth you have the *Seven Dominical or Sunday Letters*, viz. A, B, C, D, E, F, G; A being placed against
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the first of *January*, and the rest of them in order throughout the whole year, and ending again with *A* on the 31 of *December*. Now, having found what the *Dominical Letter* for years is, all those days that have that Letter standing against them, are *Sundays* for that year.

Example in this Year 1691.

By the second Section the *Dominical Letter* for the year 1691 was found to be *D*; wherefore all the days in the *Kalendar* that have *D* standing against them are *Sundays*: as in *January*, the 4th, 11th, 18th, and 25th days have *D* standing against them; wherefore all those day in that Month are *Sundays* this year 1691; and so for any other.

In the fifth broad Circle you have the *fixed Feasts*, *Terms*, and *Saints days*, as they are in any common Almanack.

SECT.

SECT. IV.

Of the two Semi-circles, which lie between the Kalendar and the Astronomical Circles.

I. *Of the uppermost Semi-circle.*

THE uppermost Semi-circle is divided into 35 parts, and are numbered at the head of each part with L.II.III.IV.V.VI, &c. to XXXV. which are numbers of Direction, as by the word *Direction*, written in the middle of that Semi-circle, doth appear. Under this Semi-circle are 13 other Concentrick Semi-circles. In the first is written *Shrove-Sunday*; in the second *Easter-day*; in the third *Rogation-Sunday*, &c. and in the last is the *Numbers of Direction* according to the *Gregorian Account*.

By help of this Semi-circle you may find all the *Moveable Feasts* and *Terms* in the year for ever: For if you find the *Number of Direction* for any year in the uppermost Semi-circle, directly under it you shall have the *Month* and day of the Month upon which all the *Moveable Feasts* and *Terms* will fall for that year.

Example in this Year 1691.

By the second Section you found the *Number of Direction* to be 22; wherefore find XXII in the uppermost Semi-circle, and under it you shall find

February	22	Shrove-sunday,
April	12	Easter-day,
May	17	Rogation-sunday,
May	21	Ascension-day,
May	31	Whitsunday,
June	7	Trinity-sunday,
	24	Sundays aft. Trin.
April	29	Easter-Term begin
May	25	Easter-Term ends,
June	12	Trin. Term begins,
July		Trin. Term ends,
November	29	Advent-sunday,

If you would find these *Moveable Feasts* according to the *Roman Account*, find the *Number of Direction* of the *Roman Account* in the undermost *Concentrick Circle*, and you have the days on which these *Moveable Feasts* will fall according to the *Gregorian Account*.

2. *Of the undermost Semi-circle.*

This undermost *Semi circle* consisteth of 14 *Concentrick Semi-circles*, and is divided in the middle in two equal parts, the separating *Column* having the names of the twelve *Months* of the year, viz. *January, February, &c.* That half which is towards the *Left band* sheweth the day, hour, and minute of the *New Moon* and the *Suns Eclipse*: And that towards the *Right band* sheweth the day, hour, and minute of the *Full Moon* and her *Eclipse*. Now if you find the *Prime* or *Golden Number* for any year, among the great *Figures* in the

the undermost Concentrick Circle, over it you have the day, hour, and minute that the *New* or *Full Moon* will happen.

Example in this Year 1691:

By the first Section you found that the *Prime* for the year 1691 was *L*. Find *1* in the lowermost Concentrick Semi-circle, and over it you shall find $3^{\frac{2}{3}}$ standing in this order; which shews that it will be *New Moon* on the 9th day of *December*, at 30 min. past 6 at Night; *a* standing for *Afternoon*, and *m* for *Morning* or before noon.

Also on the other side towards the Right hand, if you find *1* at the bottom, over it you shall find $\frac{2}{1} \frac{1}{4} \frac{3}{m}$. which shews, that it will be *Full Moon* on the 25th of *December*, at 4 minutes after 3 in the Morning: Note where you find this mark ● among the Figures, you may conclude, that at that *Full Moon* the

Moon

Moon will be *Eclipsed*, and that totally, because the black is quite round. And whereever you find the *Sun* or *Moon* among the Figures, there will be an *Eclipse*, and the *quantity* will be as you see it signed.

S E C T. V.

Of the Circles in the undermost Corner.

IN the undermost Corner of the *Instrument* are Four Concentrick Circles: In the outermost whereof are the days of the *Moons Age* from 1 to 30, numbered by 0, 1, 2, 3, &c. to 29 days old. In the second is *The Moons distance from the Sun* in Signs and degrees. In the third is *The time of High-water at London-bridg*, in hours and minutes. And in the fourth is *The time of the Moons Southing*.

Ex.

*Examples of all these for the 22 of
January 1691.*

The *Prime* or *Golden Number* for that year is 1, and consequently the *New Moon* will be the 19th day, 7 min. after 10 in the Morning. Now between the 19th day and the 22d day is 2 days, and so many *days old* will the *Moon* be on the 22d day of *January 1691*. Having the *Moons Age* 2, find 2 in the outermost Circle, and over it in the second Circle is 0, 26, that is 0 sign and 26 degrees; and so much is the *Moon distant from the Sun*. In the third Circle is 4, 36, that is 4 hours and 36 min. and at that time will it be *Highb-water* at *London bridg* that day. Again, in the fourth Circle over 2, you shall find 1, 36, that is, 1 hour and 36 minutes; at that hour will the *Moon be just South*.

*A Table for the Southing of
the Moon, and High-Water
at London-Bridg, being
more exact than the Table
in the Instrument.*

	D	Sou.	H.	W.
	Ho.	Mi.	Ho.	Mi.
At Change, or Full.	0.	0	3.	0
	1	0.	49	3. 45
	2	1.	38	4. 23
	3	2.	26	4. 54
Days after.	4	3.	15	5. 24
	5	4.	4	5. 55
	6	4.	53	6. 30
	7	5.	41	7. 12
At the Quarters.	6.	0	7.	30
	1	6.	49	8. 23
	2	7.	38	9. 23
	3	8.	26	10. 28
Days after.	4	9.	15	11. 36
	5	10.	4	0. 43
	6	10.	53	1. 45
	7	11.	41	2. 40

*A plain and easie Rule to find the
Moons Rising and Setting.*

At the New Moon she Riseth
and Setteth with the Sun.

At the Full Moon she Riseth
when the Sun Sets, and Sets when
the Sun Riseth.

At the beginning of her Increase,
she Riseth after Sun Rising, and
Sets after Sun Setting.

At the beginning of her Decrease,
she Riseth a little after the Sun Sets,
and Sets a little before the Sun Riseth.

In the first Quarter of her In-
crease she Riseth about Noon, and
Sets about Midnight.

In the second Quarter of her De-
crease, she Riseth about Midnight,
and Sets about Noon.

Observe only, that she Riseth e-
very day slower than the other by
48 minutes.

This will serve very well for
Common Use.

SECT.

SECT. VI.

By help of the Moons Age you may find what Sign the Moon is in on that day, viz. the 22d of January 1691, or any other day in the year.

LAY the third which is in the Centre of the Instrument, upon the day of the month in the Kalendar, and then will it lie over the 13th degree of *Aquarius*; and in that Sign and degree the Sun is on the 22d of January 1691. Then on the same day (the Moon being 2 days old) you found (by the former Section) that the Moon was 0 Signs 26 degrees distant from the Sun, which is almost 1 Sign; wherefore (in the little square Table) find *Aquarius* in the first Column, and in the same Line (under the figure 1 in the top) you shall find the Sign *Pisces*, and
in

in that Sign, and the 16th degree thereof, the Moon will be on the 22d day of *January*, 1691.

SECT. VII.

Of the Astronomical Circles.

THE *Astronomical Circles* are in number Six, the names whereof are written upon each Circle, *viz.* The first or outermost is the *Suns Right Ascension*, in hours and minutes. The second shews the *Suns Declination*. The third shews the *Suns Amplitude*, or the distance that the Sun *Rises* or *Sets* from the true *East* or *West* Points of the *Horizon*. The fourth shews the *hour* and *minute* of the *Suns Rising*. The fifth shews the *hour* and *minute* of the *Suns Setting*. And the sixth shews the *Length of the Day*; which being taken from 24 hours, leaves the *Length of the Night*. Ex-

*Examples of all these on the first of
May.*

Lay the Third on the first day of May, and holding it there you shall find the Third will cut.

In the first Circle, 3 hours 15 min. for the *Suns Right Ascension* from V. calling XI. I. X. H. IX. III. &c.

In the second Circle, 18 deg. for the *Suns Declination*.

In the third Circle, 30 deg. 4 min. for the *Suns Amplitude*.

In the fourth Circle, 4 hours and 22 min. for the time of *Suns Rising*.

In the fifth Circle, 7 hours and 38 min. for the time of *Suns Setting*.

In the Sixth Circle, 15 hours and a quarter for the *Length of the Day*.

And 15 hours and a quarter taken from 24 hours, there remains 8 hours and 3 quarters for the *Length of the Night*.

SECT.

S E C T. VIII.

Of the Geographical Circle.

IN this Circle are written the Names of the most eminent places in the World, *London* standing at the top, having no figures joined to it; and *Zealandia Nova* at the bottom, having 12 hours set to it; which shews that when it is 12 at noon in *London*, it will be 12 at night in *New Zealand*, it being *Antipodes* to *London*.

Now all the Countries which stand between *London* and *Zealandia Nova* on the ^{right} _{left} hand, the Sun comes to the Meridian ^{sooner} _{later} than at *London*, so many hours and minutes as the figures joined to the place do express. And so by knowing what hour of the day or night it is at *London*, you may know what hour it is any Country expressed in the Circle. Ex-

Example.

At 5 of the Clock in the Afternoon at *London*, I would know what hour it will be at *Constantinople*. Find *Constantinople* in the Circle, and joyning to it you shall find 2 hours 15 min. And because it is on the right hand of *London*, the Sun comes to their Meridian 2 hours 15 min. sooner than it doth to *London*: Wherefore add 2 hours 15 min. to 5 hours, (the time at *London*) and the sum will be 7 hours 45 minutes; which shews that when it is 5 of the Clock at *London*, it will be 45 min. after 7 at *Constantinople*. And in the same manner you may find that

	H.	M.	
at 12 a clock at <i>London</i> { it will be	7	20	at <i>Boston</i> in <i>New-England</i>
	8	7	at <i>Barbadoes</i>
	5	13	at <i>Mexico</i>
	2	30	at <i>Ferusalem</i>
	5	6	at <i>Surrat</i>
	7	1	at <i>Bamam</i>
			{ in the Morn. { Afternoon. SECT.

SECT. IX.

*To know what time of the year any Star
in the Nocturnal will be upon the
Meridian.*

Practice,

LAY a Ruler or Thread over the
Centre of the Instrument, and
over the Centre of the Star: Suppose
the last in the Tayle of the Great
Bear, and then the opposite part of
the Ruler or Thread will cut April
the 1st. in the Circle of Months, the
Night on which that Star will be
upon the Meridian.

*To find the Hour of the Night by any of
the Stars in the Nocturnal being up-
on the Meridian any day of the year.*

Practice,

On the first day of April at Night,
I find the last Star in the Great Bears
Tayle

Tayle to be upon the Meridian, and I would know what a Clock it is; I lay a Ruler or Thread from the *Centre* directly over the *Star*, and note, where it cuts the Hour Circle, from which point let one Foot of your Compasses, and extend the other point to the Hour of XII. The same extent, the same way, will reach from the first of *April* to almost a quarter at 12, which is the Hour of Night required.

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